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10/620,387	07/17/2003	Geoffrey Wehrman	1252.1071CIP3	8762

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EXAMINER	
BLACK, LINH	

ART UNIT	PAPER NUMBER
2169	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/620,387	WEHRMAN ET AL.	
	Examiner	Art Unit	
	LINH BLACK	2169	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This communication is responsive to the Applicants' arguments dated 10/20/09. Claims 1-11 are pending in the application. Claims 1, 5, 9-10 are independent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Jiang et al. (US 6453354).

As per claims 1, 10, Jiang et al. teach

releasing a lock on the virtual metadata when relocation of a required metadata server is underway during execution of the operations on the virtual metadata – fig. 3, items 60-71, metadata in file server 60 which is further described at col. 9, line 54 to col. 10, line 19; col. 27, line 59 to col. 28 (a shared lock gives a data mover the permission to read the file, while an exclusive lock gives the data mover…to modify and its metadata…or the secondary data mover itself releases the lock voluntarily…release.); col. 29, line 65 to col. 30, line 40 (if a secondary data mover modifies the file and as a result the file's metadata is changed, it will increase the version number, when it releases the lock, it will tell the Owner about the new metadata...The version number is exchanged and compared to make sure that every data mover always caches

and operates on the most up to date version of the metadata, so that the exchange or metadata from a secondary data mover to the Owner follows release consistency, and the exchange of metadata from an Owner to a secondary data mover follows entry consistency); col. 35, lines 49-57.

As per claims 2, 11, Jiang et al. teach

Examiner checked the application's specification and drawings and did not find a definition for "a private data chain". The Microsoft Computer Dictionary – Fourth Edition cites data chaining as "the process of storing segments of data in noncontiguous locations while retaining the ability to reconnect them in the proper sequence."

wherein the virtual metadata is formed as a private data chain; locking a pointer to the private data chain prior to linking to a first item of private data in the private data chain – col. 8, line 52 to col. 9, line 14; col. 11, lines 14-32; col. 31, last paragraph.

As per claims 3, 12, Jiang et al. teach

waiting, after said releasing, for availability of a lock on the pointer to the private data chain upon completion of relocation of the metadata server, before continuing with execution of operations on the virtual metadata – col. 27, line 32 to col. 28, line 15; col. 29, lines 9-41.

As per claim 4, Jiang et al. teach

wherein said releasing, waiting and continuing execution of operations on the virtual metadata after relocation of the metadata server are performed transparently to users – col. 13, last paragraph; col. 17, line 39 to col. 18, line 10; col. 19, last paragraph; col. 27, lines 49-59.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US 6453354), in view of Cabrera et al. (US 6981005).

As per claim 5, Jiang et al. teach

retargeting objects on the computer system nodes accessing a current metadata server to a new metadata server – col. 3, lines 59 to col. 4, line 14 (network file server system with data movers and network clients); fig. 3, items 60-71, metadata in file server 60 which is further described at col. 9, line 54 to col. 10, line 19; col. 8, last paragraph to col. 9, line 14; col. 29, line 43 to col. 30, line 41.

releasing a lock on virtual metadata when relocation of the metadata server is underway during execution of operations on the virtual metadata – fig. 3, items 60-71, metadata in file server 60 which is further described at col. 9, line 54 to col. 10, line 19; col. 27, line 59 to col. 28 (a shared lock gives a data mover the permission to read the file, while an exclusive lock gives the data mover…to modify and its metadata…or the secondary data mover itself releases the

lock voluntarily…release.); col. 29, line 65 to col. 30, line 40 (if a secondary data mover modifies the file and as a result the file's metadata is changed, it will increase the version number, when it releases the lock, it will tell the Owner about the new metadata...The version number is exchanged and compared to make sure that every data mover always caches and operates on the most up to date version of the metadata, so that the exchange or metadata from a secondary data mover to the Owner follows release consistency, and the exchange of metadata from an Owner to a secondary data mover follows entry consistency); col. 35, lines 49-57.

However, Jiang does not disclose the implementation of DMAPI. Cabrera teaches hierarchical storage management systems, migrating of data to other storage location and preserves the relationships between the migrated data and the stream of data via metadata – col. 5, lines 7-67; network client and server computers - col. 7, last paragraph; an application programming interface for data migration - claims 28-29. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Jiang's teaching with Cabrera's teaching in order to efficiently allow data migrating between computers/servers.

Claims 6-8 claim the same subject matter as of claims 2-4 and are rejected based on the same ground of rejection.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US 6453354), in view of Manczak et al. (US 20020161855)

As per claim 9, Jiang et al. teach

storage devices storing at least one file; network coupled to said storage devices – col. 1, lines 9-10; fig. 4; col. 38, lines 14-23.

at least one metadata server node, coupled to said network – fig. 3, items 60-71, metadata in file server 60 which is further described at col. 9, line 54 to col. 10, line 19

metadata client nodes, coupled to said storage area network, to release a lock on virtual metadata when relocation of said at least one metadata server is underway during execution of operations on the virtual metadata - fig. 3 where clients interchange metadata with file server 60; col. 27, line 59 to col. 28 (a shared lock gives a data mover the permission to read the file, while an exclusive lock gives the data mover…to modify and its metadata…or the secondary data mover itself releases the lock voluntarily…release.); col. 29, line 65 to col. 30, line 40 (if a secondary data mover modifies the file and as a result the file's metadata is changed, it will increase the version number, when it releases the lock, it will tell the Owner about the new metadata...The version number is exchanged and compared to make sure that every data mover always caches and operates on the most up to date version of the metadata, so that the exchange or metadata from a secondary data mover to the Owner follows release consistency, and the exchange of metadata from an Owner to a secondary data mover follows entry consistency); col. 35, lines 49-57.

However, Jiang does not disclose a SAN. Manczak teaches file storage system using SAN technology – par. 12; metadata servers – par. 22; migrate file data between nodes – par. 30; metadata server coupled to a storage device - pars. 45-46, 48. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Jiang's teaching with Manczak's teaching in order to allow efficient communication between computer data nodes.

Response to Arguments

Applicant's arguments with respect to claims 1-12 have been considered but are not persuasive.

Regarding the Applicant's argument on page 5 that "No mention of what happens to the file or data blocks described…no form of the word "relocate" or "migrate" has been found anywhere in Jiang et al." Examiner disagrees.

The limitation of claim 1 is very broad. The limitation "relocation of a required metadata server is underway…" can be meant the metadata server which requires the relocation regarding the metadata. Jiang discloses in figs. 18-19, metadata storage 332 of the file system 331 in the data storage device; in fig. 21, if a secondary data mover modifies the file and as a result the file's metadata is changed, it will increase the version number, when it releases the lock, it will tell the owner about the new metadata…the version number is exchanged and compared to make sure that every data mover always caches and operates on the most up-to-date version of the metadata, so that the exchange of metadata from a secondary data mover to the owner follows release consistency, and the exchange of metadata from an owner to a secondary data mover follows entry consistency"; figs. 20-21 disclose distributed locking and metadata management module.

Regarding the Applicant's argument on page 6 that "nothing has been cited or found in Cabrera et al. about what happens during relocation of a metadata server…All of the examples of migration that have been found in Cabrera et al. relate to relocation of data, not metadata and certainly not a metadata server…disclosed in Cabrera et al. by "generating metadata for description of the migration (col. 7, last line to col. 8, line 1). Nothing ...suggests what must

happen "when relocation of the metadata server is underway" as recited in claim 5". Examiner disagrees.

Cabrera et al.'s teaching is combined with Jiang et al.'s teaching in order to show the implementation of DMAPI is not novel in the technological art. Cabrera does disclose in fig. 4, at 430, metadata is generated descriptive of the file migration and the metadata is stored in a storage unit. Please see related Jiang's teachings in paragraphs above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINH BLACK whose telephone number is 571-272-4106. The examiner can normally be reached on Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Trujillo can be reached on 571-272-3677. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LINH BLACK
Examiner
Art Unit 2169

/HUNG Q. PHAM/
Primary Examiner, Art Unit 2169